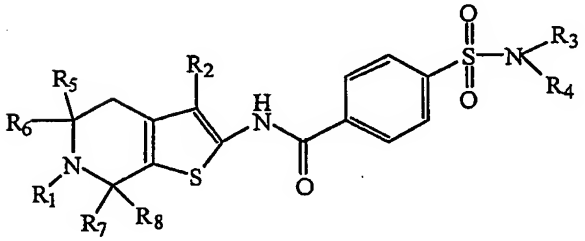
CLAIMS

1. A thieno[2,3-c]pyridine compound of the formula 2-[[4-[[ethyl(phenylmethyl)amino]sulfonyl]benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide.

2. A thieno[2,3-c]pyridine compound of the formula 2-[[4-[(4-methyl-1-piperazinyl)sulfonyl]benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide.

3. A pharmaceutical composition comprising as an active ingredient a compound of the general formula I:



wherein:

R_1 is selected from the group consisting of H; straight or branched alkyl of 1-6 carbon atoms; arylalkyl; substituted arylalkyl; cycloalkyl, optionally substituted with alkyl groups; alkanoyl; arylcarbonyl optionally substituted at the aryl group; cycloalkylcarbonyl; alkoxycarbonyl;

R_2 is selected from the group consisting of carboxy; cyano; aminocarbonyl; alkylaminocarbonyl; arylaminocarbonyl optionally substituted at the aryl group; dialkylaminocarbonyl wherein each alkyl is straight or branched chain C_1-C_6 alkyl or both alkyl groups together may form a 3-7 membered saturated, unsaturated or aromatic monocyclic or bicyclic nitrogen containing heterocyclyl, optionally containing one or two additional heteroatoms; alkoxycarbonyl; alkanoyl; cycloalkylcarbonyl; arylcarbonyl optionally substituted on the aryl group, benzothiazol-2-yl;

R_3 and R_4 are selected from the group consisting of C_1-C_6 alkyl, optionally substituted by hydroxy, alkoxy, amino or alkylamino, C_2-C_4 monounsaturated alkenyl, cycloalkyl, aryl, arylmethyl, or R_3 and R_4 together may form an optionally substituted 5-7 membered saturated,

unsaturated or aromatic monocyclic or bicyclic nitrogen containing heterocyclyl, optionally containing one or two additional heteroatoms;
R_5, R_6, R_7 and R_8 are selected from the group consisting of H or C_1-C_6 alkyl, with the proviso that when R_5, R_6, R_7 and R_8 are C_1-C_6 alkyl, R_1 is hydrogen;
and pharmaceutically acceptable salts thereof; further comprising a pharmaceutically acceptable diluent or carrier.

4. The pharmaceutical composition according to claim 3, wherein R_1 is selected from the group consisting of methyl, ethyl, 1-methylethyl, phenylmethyl, acetyl, ethoxycarbonyl and R_5 =R_6 =R_7 =R_8 are hydrogens.

5. The pharmaceutical composition according to claim 3, wherein R_1 is hydrogen and R_5 =R_6 =R_7 =R_8 are hydrogens or methyl groups.

6. The pharmaceutical composition according to claim 3, wherein R_1 =R_5 =R_6 is methyl and R_7 =R_8 are hydrogens.

7. The pharmaceutical composition according to claim 3, wherein R_2 is selected from the group consisting of cyano, methoxycarbonyl, ethoxycarbonyl, aminocarbonyl, methylaminocarbonyl, dimethylaminocarbonyl, pyrrolidinylcarbonyl, piperidinylcarbonyl, morpholinylcarbonyl, benzothiazol-2-yl.

8. The pharmaceutical composition according to claim 3, wherein R_3 and R_4 are selected from the group consisting of methyl, ethyl, propyl, butyl, methoxyethyl, chlorobutyl, cyanoethyl, phenyl, cyclopentyl, cyclohexyl, phenylmethyl, allyl or crotyl, R_3 and R_4 may be equal or different.

9. The pharmaceutical composition according to claim 3, wherein R_3 and R_4 form pyrrolidine, piperidine, 2-methyl, 3-methyl, 4-methyl or 3,5-dimethyl piperidine, perhydroazepine, morpholine, piperazine, 4-methylpiperazine, 3,4-dihydro-2(1H)-isoquinolinyl, 3,4-dihydro-1(2H)quinoline, 1,3,3-trimethyl-6-azabicyclo[3.2.1]oct-6-ane and substituted derivatives thereof.

10. The pharmaceutical composition according to claim 3 wherein the compound of Formula I is selected from:
2-[[4-[(ethylbutylamino) sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-

6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[(4-(3,4-dihydro-2(1H)-isoquinolinyl)sulfonyl] benzoyl]amino]-6-(1-methylethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide;

2-[[4-(methylphenylamino)sulfonyl] benzoyl]amino]-6-(1-methylethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide;

2-[[4-(3,4-dihydro- 2(1H)-isoquinolinyl)sulfonyl]benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethyl thieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(diethylamino)sulfonyl] benzoyl]amino]-3-(benzothiazol-2-yl)-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-(morpholinylsulfonyl) benzoyl]amino]-3-(benzothiazol-2-yl)-6-(1-methylethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-(diethylamino)sulfonyl] benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethyl thieno[2,3-c]pyridine-3-carboxylic acid ethyl ester;

2-[[4-(3,4-dihydro-1(2H)-quinolinyl)sulfonyl] benzoyl]amino]-3-(benzothiazol-2-yl)-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-c]pyridine;

2-[[4-(hexahydro-1H-azepin-1-yl)sulfonyl] benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethyl thieno[2,3-c]pyridine-3-carboxylic acid ethyl ester;

2-[[4-[[4-(methyl)-1-piperazinyl]sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(1,3,3-trimethyl-6-azabicyclo [3.2.1]oct-6-yl)sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(methylphenylamino) sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-(morpholinylsulfonyl) benzoyl] amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(diethylamino)sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-6-carboxylic acid ethyl ester;

2-[[4-[[4-(3-methyl-1-piperidinyl)]sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(diethylamino)sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-

(phenylmethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(diethylamino)sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[[4-(ethoxycarbonyl)-1-piperazinyl]sulfonyl]benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(cyclohxylmethylamino)sulfonyl]benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(di-2-propenylamino)sulfonyl]benzoyl]-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-c]pyridine-3-carboxylic acid methyl ester;

2-[[4-[(di-2-methoxyethylamino)]sulfonyl]benzoyl]-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(1,3,3-trimethyl-6-azabicyclo[3.2.1.]oct-6-yl)sulfonyl]benzoyl]amino] –6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(diethylamino) sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(diethylamino) sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-(1-methylethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(di-2-methoxyethylamino)sulfonyl]benzoyl]-amino]-3 -(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(methylphenylamino)sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[[4-(ethoxycarbonyl)-1-piperazinyl]sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7- tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(methylbutylamino)sulfonyl]benzoyl]amino]-6-(1-methylethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid ethyl ester;

2-[[4-[[4-(ethoxycarbonyl)-1-piperazinyl]sulfonyl]benzoyl]amino]-6-(1-methylethyl)-4,5,6,7- tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid ethyl ester;

2-[[4-(diethylamino)sulfonyl] benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(methylphenylamino)sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid methylamide;

2-[[4-[[ethyl(phenylmethyl)amino]sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(4-methyl-1-piperazinyl)sulfonyl]benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide;

2-[[(4-(3,4-dihydro-1(2H)-quinolinyl)sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid methylamide;

2-[[4-[(4-methyl-1-piperazinyl)sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid methylamide;

2-[[4-[(4-methyl-1-piperazinyl)sulfonyl] benzoyl]amino]-3-(benzothiazol-2-yl)-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4- (diethylamino)sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid N-methylamide;

2-[[4- (diethylamino)sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid morpholinylamide.

11. The pharmaceutical composition according to claim 10 wherein the compound of formula I is:

2-[[4-[(ethylbutylamino) sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

12. The pharmaceutical composition according to claim 10 wherein the compound of formula I is:

2-[[4-[(diethylamino)sulfonyl] benzoyl]amino]-3-(benzothiazol-2-yl)-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

13. The pharmaceutical composition according to claim 10 wherein the compound of formula I is:

2-[[4-[[ethyl(phenylmethyl)amino]sulfonyl]benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide.

14. The pharmaceutical composition according to claim 10 wherein the compound of formula I is:

2-[[4-[(4-methyl-1-piperazinyl)sulfonyl]benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide.

15. The pharmaceutical composition according to any one of claims 3-14 capable of inhibiting the interaction of GAGs with GAG specific ECAMs.

16. The pharmaceutical composition according to claim 15 wherein the GAG is selected from the group consisting of heparan sulfate (HS-GAG), heparin, chondroitin sulfate, dermatan sulfate, keratan sulfate and derivatives and fragments thereof.

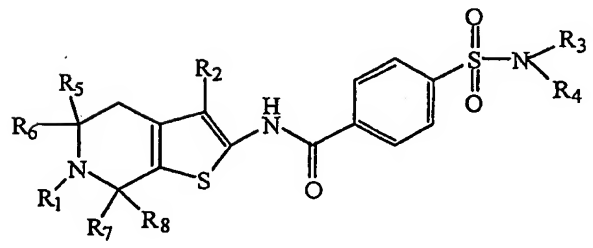
17. The pharmaceutical composition according to claim 16 wherein the GAG is HS-GAG.

18. The pharmaceutical composition according to claim 15 wherein the GAG specific ECAMs are selected from the group consisting of L-selectin and P-selectin.

19. The pharmaceutical composition according to claim 15 for inhibition of neutrophil infiltration in vivo, with the proviso that the compound is other than 2-[[4-[(1,3,3-trimethyl-6-azabicyclo[3.2.1.]oct-6-yl)sulfonyl]benzoyl] amino] -6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid ethyl ester.

20. A method for inhibiting cell adhesion or cell migration in vitro comprising the step of exposing the cells to a pharmaceutical composition according to any one of claims 3-19 in an amount sufficient for preventing the interactions of the GAG with at least one GAG specific ECAM.

21. A method for the treatment or prevention of diseases or disorders related to cell adhesion or cell migration mediated by GAG-ECAM interactions, comprising the step of administering to a subject in need thereof a therapeutically effective amount of a pharmaceutical composition comprising a compound of the general formula I:



wherein:

R_1 is selected from the group consisting of H; straight or branched alkyl of 1-6 carbon atoms; arylalkyl; substituted arylalkyl; cycloalkyl, optionally substituted with lower alkyl groups; lower alkanoyl; arylcarbonyl optionally substituted at the aryl group; cycloalkylcarbonyl; alkoxycarbonyl;

R_2 is selected from the group consisting of carboxy; cyano; aminocarbonyl; alkylaminocarbonyl; arylaminocarbonyl optionally substituted at the aryl group; dialkylaminocarbonyl wherein each alkyl is straight or branched chain lower alkyl or both alkyl groups together may form a 3-7 membered saturated, unsaturated or aromatic monocyclic or bicyclic nitrogen containing heterocyclyl, optionally containing one or two additional heteroatoms; alkoxycarbonyl; lower alkanoyl; cycloalkylcarbonyl; arylcarbonyl optionally substituted on the aryl group, benzothiazol-2-yl;

R_3 and R_4 are selected from the group consisting of C_1-C_6 alkyl, optionally substituted by hydroxy, alkoxy, amino or alkylamino, C_2-C_4 monounsaturated alkenyl, cycloalkyl, aryl, arylmethyl, or R_3 and R_4 together may form an optionally substituted 5-7 membered saturated, unsaturated or aromatic monocyclic or bicyclic nitrogen containing heterocyclyl, optionally containing one or two additional heteroatoms;

R_5, R_6, R_7 and R_8 are selected from the group consisting of H or C_1-C_6 alkyl, with the proviso that when R_5, R_6, R_7 and R_8 are C_1-C_6 alkyl, R_1 is hydrogen;

and pharmaceutically acceptable salts thereof; further comprising a pharmaceutically acceptable diluent or carrier.

22. The method according to claim 21 wherein R_1 is selected from the group consisting of methyl, ethyl, 1-methylethyl, phenylmethyl, acetyl, ethoxycarbonyl and R_5 =R_6 =R_7 =R_8 are hydrogens.

23. The method according to claim 21 wherein R_1 is hydrogen and R_5 =R_6 =R_7 =R_8 are hydrogens or methyl groups.

24. The method according to claim 21 wherein R_1 =R_5 =R_6 is methyl and R_7 =R_8 are hydrogens.

25. The method according to claim 21 wherein R_2 is selected from the group consisting of cyano, methoxycarbonyl, ethoxycarbonyl, aminocarbonyl, methylaminocarbonyl, dimethylaminocarbonyl, pyrrolidinylcarbonyl, piperidinylcarbonyl, morpholinylcarbonyl, (3,5-dimethyl-1H-pyrazolyl) carbonyl, benzothiazol-2-yl.

26. The method according to claim 21 wherein R_3 and R_4 are selected from the group consisting of methyl, ethyl, propyl, butyl, methoxyethyl, chlorobutyl, cyanoethyl, phenyl, cyclopentyl, cyclohexyl, phenylmethyl, allyl or crotyl, R_3 and R_4 may be equal or different.

27. The method according to claim 21 wherein R_3 and R_4 form pyrrolidine, piperidine, 2-methyl, 3-methyl, 4-methyl or 3,5-dimethyl piperidine, perhydroazepine, morpholine, piperazine, 4-methylpiperazine, 3,4-dihydro-2(1H)-isoquinolinyl, 3,4-dihydro-1(2H)quinoline, 1,3,3-trimethyl-6-azabicyclo[3.2.1]oct-6-ane and substituted derivatives thereof.

28. The method according to claim 21 wherein the compound of formula I is selected from:

2-[[4-[(ethylbutylamino) sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[(4-(3,4-dihydro-2(1H)-isoquinolinyl)sulfonyl] benzoyl]amino]-6-(1-methylethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide;

2-[[4-(methylphenylamino)sulfonyl] benzoyl]amino]-6-(1-methylethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide;

2-[[4-(3,4-dihydro-1(2H)-quinolinyl)sulfonyl]benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethyl thieno[2,3-c]pyridine-3-carboxamide ;

2-[[4-[(diethylamino)sulfonyl] benzoyl]amino]-3-(benzothiazol-2-yl)-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-(morpholinylsulfonyl) benzoyl]amino]-3-(benzothiazol-2-yl)-6-(1-methylethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-(diethylamino)sulfonyl] benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethyl thieno[2,3-c]pyridine-3-carboxylic acid ethyl ester ;

2-[[4-(3,4-dihydro-1(2H)-quinolinyl)sulfonyl] benzoyl]amino]-3-(benzothiazol-2-yl)-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-

c]pyridine;

2-[[4-(hexahydro-1H-azepin-1-yl)sulfonyl] benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethyl thieno[2,3-c]pyridine-3-carboxylic acid ethyl ester;

2-[[4-[[4-(methyl)-1-piperazinyl]sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(1,3,3-trimethyl-6-azabicyclo [3.2.1]oct-6-yl)sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(methylphenylamino) sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-(morpholinylsulfonyl) benzoyl] amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(diethylamino)sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-6-carboxylic acid ethyl ester;

2-[[4-[[4-(3-methyl-1-piperidinyl)]sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(diethylamino)sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-(phenylmethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(diethylamino)sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[[4-(ethoxycarbonyl)-1-piperazinyl]sulfonyl]benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(cyclohxylmethylamino)sulfonyl]benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(di-2-propenylamino)sulfonyl]benzoyl]-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-c]pyridine-3-carboxylic acid methyl ester;

2-[[4-[(di-2-methoxyethylamino)]sulfonyl]benzoyl]-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(1,3,3-trimethyl-6-azabicyclo[3.2.1.]oct-6-yl)sulfonyl]benzoyl]amino] –6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(diethylamino) sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-

methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(diethylamino) sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-(1-methylethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(di-2-methoxyethylamino)sulfonyl]benzoyl]-amino]-3 -(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(methylphenylamino)sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4-[[4-(ethoxycarbonyl)-1-piperazinyl]sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-methyl-4,5,6,7- tetrahydrothieno[2,3-c]pyridine;

2-[[4-[(methylbutylamino)sulfonyl]benzoyl]amino]-6-(1-methylethyl)-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid ethyl ester;

2-[[4-[[4-(ethoxycarbonyl)-1-piperazinyl]sulfonyl]benzoyl]amino]-6-(1-methylethyl)-4,5,6,7- tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid ethyl ester;

2-[[4-(diethylamino)sulfonyl] benzoyl]amino]-4,5,6,7-tetrahydro-5,5,7,7-tetramethylthieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(methylphenylamino)sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid methylamide;

2-[[4-[[ethyl(phenylmethyl)amino]sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide;

2-[[4-[(4-methyl-1-piperazinyl)sulfonyl]benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide;

2-[[(4-(3,4-dihydro-1(2H)-quinolinyl)sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid methylamide;

2-[[4-[(4-methyl-1-piperazinyl)sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid methylamide;

2-[[4-[(4-methyl-1-piperazinyl)sulfonyl] benzoyl]amino]-3-(benzothiazol-2-yl)-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

2-[[4- (diethylamino)sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid N-methylamide;

2-[[4- (diethylamino)sulfonyl] benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxylic acid morpholinylamide.

29. The method according to claim 28 wherein the compound of formula I is:

2-[[4-[(ethylbutylamino) sulfonyl]benzoyl]amino]-3-(benzothiazol-2-yl)-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

30. The method according to claim 28 wherein the compound of formula I is: 2-[[4-[(diethylamino)sulfonyl] benzoyl]amino]-3-(benzothiazol-2-yl)-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine;

31. The method according to claim 28 wherein the compound of formula I is: 2-[[4-[[ethyl(phenylmethyl)amino]sulfonyl]benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide.

32. The method according to claim 28 wherein the compound of formula I is: 2-[[4-[(4-methyl-1-piperazinyl)sulfonyl]benzoyl]amino]-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine-3-carboxamide.

33. The method according to claim 21 wherein the disease or disorder related to cell adhesion or cell migration is selected from the group consisting of an inflammatory process, an autoimmune process or disease, platelet-mediated pathologies, tumor metastasis, viral diseases, atherosclerosis, amyloid disorders, and kidney disease.

34. The method according to claim 33 wherein the inflammatory disorder is selected from the group consisting of septic shock, post-ischemic leukocyte-mediated tissue damage, frost-bite injury or shock, acute leukocyte-mediated lung injury, acute pancreatitis, asthma, traumatic shock, stroke, traumatic brain injury, nephritis, acute and chronic inflammation, atopic dermatitis, psoriasis, uveitis, and retinitis, and inflammatory bowel disease.

35. The method according to claim 33 wherein the autoimmune disease is selected from the group consisting of rheumatoid arthritis and multiple sclerosis.

36. A method of treatment or prevention of GAG mediated diseases or disorders comprising the step of administering to a subject in need thereof a therapeutically effective amount of a pharmaceutical composition according to any one of claims 3-14.

37. The method according to claim 36 wherein the GAG is HS-GAG.

38. The method according to any one of claims 36 and 37 wherein the disease or disorder is selected from the group consisting of amyloid disorders, viral diseases, bacterial infections, kidney diseases, cancer, tumor metastasis, and coagulation disorders.

39. The method according to claim 38 wherein the disease or disorder is selected from the group consisting of Alzheimer's disease, type II diabetes, hepatitis C, hepatitis B, influenza, rhinovirus infections, cytomegalovirus infections, AIDS, respiratory syncytial virus infections, malaria, and leukemia.

40. A method for modulating anticoagulant activity of glycosaminoglycans in a subject comprising the step of administering a therapeutically effective amount of a pharmaceutical composition according to any of claims 3-14, thereby modulating the anticoagulant activity of glycosaminoglycans.

41. The method according to claim 40, wherein the glycosaminoglycan is heparin.

42. A method for the prevention or treatment of inflammatory bowel disease comprising the step of administering to a subject in need thereof a therapeutically effective amount of a pharmaceutical composition comprising as an active ingredient a thieno[2,3-c]pyridine compound of formula 2-[[4-[(diethylamino)sulfonyl] benzoyl]amino]-3-(benzothiazol-2-yl)-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine and a pharmaceutically acceptable salt thereof; further comprising a pharmaceutically acceptable carrier or diluent.

43. A method for the prevention or treatment of multiple sclerosis comprising the step of administering to a subject in need thereof a therapeutically effective amount of a pharmaceutical composition comprising as an active ingredient a thieno[2,3-c]pyridine compound of formula 2-[[4-[(diethylamino)sulfonyl] benzoyl]amino]-3-(benzothiazol-2-yl)-6-ethyl-4,5,6,7-tetrahydrothieno[2,3-c]pyridine and a pharmaceutically acceptable salt thereof; further comprising a pharmaceutically acceptable carrier or diluent.